

173-491 WAC
EMISSION STANDARDS AND CONTROLS FOR SOURCES
EMITTING GASOLINE VAPORS

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WAC 173-491-010 POLICY AND PURPOSE.

- (1) It is the policy of the department of ecology (ecology) under the authority vested in it by chapters 43.21A and 70.94 RCW to provide for the systematic control of air pollution from air contaminant sources and for the proper development of the state's natural resources.
- (2) It is the purpose of this chapter to establish standards for the control of air contaminants emitted from gasoline marketing sources.

[Statutory Authority: RCW 70.94.331. 91-14-101 (Order 90-63), § 173-491-010, filed 7/2/91, effective 8/2/91.]

WAC 173-491-015 APPLICABILITY.

This chapter shall apply to gasoline marketing operations, including the storage, transport, and transfer of gasoline, including the transfer from storage tanks into transport tanks, and from storage tanks into motor vehicles. The requirements of this chapter supersede any less restrictive requirements of chapter 173-490 WAC, Emission standards and controls for sources emitting volatile organic compounds (VOC).

[Statutory Authority: RCW 70.94.331. 91-14-101 (Order 90-63), § 173-491-015, filed 7/2/91, effective 8/2/91.]

WAC 173-491-020 DEFINITIONS.

The definitions of terms contained in chapter 173-400 WAC are by this reference incorporated into this chapter. Unless a different meaning is clearly required by context, the following words and phrases, as used in this chapter, shall have the following meanings:

- (1) "Bottom loading" means the filling of a tank through a line entering the bottom of the tank.
- (2) "Bulk gasoline plant" means a gasoline storage and transfer facility that receives more than ninety percent of its annual gasoline throughput by transport tank, and reloads gasoline into transport tanks.

- (3) "Canister capture rate" means canister effectiveness times the percent of light duty vehicles that have onboard vapor recovery systems.
- (4) "Canister effectiveness" means the percent of refueling vapors recovered by a representative onboard vapor recovery system.
- (5) "Centroid" means the geometric center of a gas pump or a bank of gas pumps or, if a station has more than one bank of pumps, the geometric center of each bank of pumps.
- (6) "Certified vapor recovery system" means a vapor recovery system which has been certified by the department of ecology. Only Stage II vapor recovery systems with a single coaxial hose can be certified. The department may certify vapor recovery systems certified by the California Air Resources Board as of the effective date of the regulation.
- (7) "Gasoline" means a petroleum distillate which is a liquid at standard conditions and has a true vapor pressure greater than four pounds per square inch absolute at twenty degrees C, and is used as a fuel for internal combustion engines. Also any liquid sold as a vehicle fuel with a true vapor pressure greater than four pounds per square inch absolute at twenty degrees C shall be considered "gasoline" for purpose of this regulation.
- (8) "Gasoline dispensing facility" means any site dispensing gasoline into motor vehicle fuel tanks from stationary storage tanks.
- (9) "Gasoline loading terminal" means a gasoline transfer facility that receives more than ten percent of its annual gasoline throughput solely or in combination by pipeline, ship or barge, and loads gasoline into transport tanks.
- (10) "Leak free" means a liquid leak of less than four drops per minute.
- (11) "Modified" means any physical change in, or change in the method of operation of, a gasoline dispensing facility that increases the amount of any air contaminant emitted by such source or that results in the emission of any air contaminant not previously emitted. The term modified shall be construed consistent with the definitions of modification in Section 7411, Title 42, United States Code, and with rules implementing that section. Section 7411 exempts changes in gasoline throughput not resulting directly from a physical change.
- (12) "Ozone-contributing county" means a county in which the emissions have contributed to the formation of ozone in any county or area where violations of federal ozone standards have been measured, and includes: Cowlitz, Island, Kitsap, Lewis, Skagit, Thurston, Wahkiakum, and Whatcom counties.
- (13) "Permanent residence" means a single-family or multi-family dwelling, or any other facility designed for use as permanent housing.
- (14) "Stage I" means gasoline vapor recovery during all gasoline marketing transfer operations except motor vehicle refueling.
- (15) "Stage II" means gasoline vapor recovery during motor vehicle refueling operations from stationary tanks.

- (16) "Submerged fill line" means any discharge pipe or nozzle which meets either of the following conditions:
- Where the tank is filled from the top, the end of the discharge pipe or nozzle must be totally submerged when the liquid level is six inches from the bottom of the tank, or;
 - Where the tank is filled from the side, the discharge pipe or nozzle must be totally submerged when the liquid level is eighteen inches from the bottom of the tank.
- (17) "Submerged loading" means the filling of a tank with a submerged fill line.
- (18) "Suitable cover" means a door, hatch, cover, lid, pipe cap, pipe blind, valve, or similar device that prevents the accidental spilling or emitting of gasoline. Pressure relief valves, aspirator vents, or other devices specifically required for safety and fire protection are not included.
- (19) "Throughput" means the amount of material passing through a facility.
- (20) "Top off" means to attempt to dispense gasoline to a motor vehicle fuel tank after a vapor recovery dispensing nozzle has shut off automatically.
- (21) "Transport tank" means a container used for shipping gasoline over roadways.
- (22) "True vapor pressure" means the equilibrium partial pressure of a petroleum liquid as determined by methods described in American Petroleum Institute Bulletin 2517, 1980.
- (23) "Vapor balance system" means a system consisting of the transport tank, gasoline vapor transfer lines, storage tank, and all tank vents designed to route displaced gasoline vapors from a tank being filled with liquid gasoline.
- (24) "Vapor collection system" means a closed system to conduct vapors displaced from a tank being filled into the tank being emptied, a vapor holding tank, or a vapor control system.
- (25) "Vapor control system" means a system designed and operated to reduce or limit the emission of gasoline vapors emission into the ambient air.
- (26) "Vapor-mounted seal" means a primary seal mounted so there is an annular vapor space underneath the seal. The annular vapor space is bounded by the bottom of the primary seal, the tank wall, the liquid surface, and the floating roof.
- (27) "Vapor tight" means a leak of less than one hundred percent of the lower explosive limit on a combustible gas detector measured at a distance of one inch from the source or no visible evidence of air entrainment in the sight glasses of liquid delivery hoses.

[Statutory Authority: 1996 c 294. 97-04-012 (Order 95-15), § 173-491-020, filed 1/27/97, effective 2/27/97. Statutory Authority: RCW 70.94.331. 93-13-011 (Order 92-47), § 173-491-020, filed 6/7/93, effective 7/8/93; 91-14-101 (Order 90-63), § 173-491-020, filed 7/2/91, effective 8/2/91.]

WAC 173-491-030 REGISTRATION.

- (1) The owner or operator of a gasoline loading terminal, bulk gasoline plant, or gasoline dispensing facility subject to the provisions of WAC 173-491-040 (2) through (5) shall register annually the facility with ecology or local air authority. Annual registration shall be made by the owner or operator on a form provided by ecology or local air authority

within sixty days of receipt of the form. Such registration form shall require information relevant to determining whether the facility is in compliance with the requirements of this chapter and be accompanied by the following fee: Gasoline loading terminals five hundred dollars, bulk gasoline plants two hundred dollars, gasoline dispensing facilities one hundred dollars, or a greater amount duly adopted by a local air pollution authority. The amount of the fees collected shall only be used to administer the registration program for facilities subject to this chapter.

- (2) Administration of the registration program shall include:
 - (a) Initial registration and annual or other periodic reports from the source owner providing information directly related to air pollution registration.
 - (b) On-site inspections necessary to verify compliance with registration requirements.
 - (c) Data storage and retrieval systems necessary for support of the registration program.
 - (d) Emission inventory reports and emission reduction credits computed from information provided by sources pursuant to registration.
 - (e) Staff review, including engineering analysis for accuracy and currentness, of information provided by sources pursuant to registration program requirements.
 - (f) Clerical and other office support provided in direct furtherance of the registration program.
 - (g) Administrative support provided in directly carrying out the registration program.
- (3) Ecology or local air authority will provide a written verification of registration to owners or operators of facilities subject to the provisions of WAC 173-491-040 (2) through (5). Such verification shall be available for inspection by ecology or local air authority personnel during normal business hours.
- (4) The owner or operator of a gasoline loading terminal or a gasoline dispensing facility shall maintain total annual gasoline throughput records for the most recent two calendar years. Such records shall be available for inspection by ecology or local air authority personnel during normal business hours.

[Statutory Authority: RCW 70.94.331. 91-14-101 (Order 90-63), § 173-491-030, filed 7/2/91, effective 8/2/91.]

WAC 173-491-040 GASOLINE VAPOR CONTROL REQUIREMENTS.

- (1) Fixed-roof gasoline storage tanks.
 - (a) All fixed-roof gasoline storage tanks having a nominal capacity greater than forty thousand gallons shall comply with one of the following:
 - (i) Meet the equipment specifications and maintenance requirements of the federal standards of performance for new stationary sources - Storage Vessels for Petroleum Liquids (40 CFR 60, subpart K).

- (ii) Be retrofitted with a floating roof or internal floating cover using a metallic seal or a nonmetallic resilient seal at least meeting the equipment specifications of the federal standards referred to in (a)(i) of this subsection or its equivalent.
 - (iii) Be fitted with a floating roof or internal floating cover meeting the manufacturer's equipment specifications in effect when it was installed.
 - (b) All seals used in (a)(ii) and (iii) of this subsection are to be maintained in good operating condition and the seal fabric shall contain no visible holes, tears, or other openings.
 - (c) All openings not related to safety are to be sealed with suitable closures.
 - (d) Tanks used for the storage of gasoline in bulk gasoline plants and equipped with vapor balance systems as required in subsection (3)(b) of this section shall be exempt from the requirements of subsection (1) of this section.
- (2) Gasoline loading terminals.
- (a) This chapter shall apply to all gasoline loading terminals with an average annual gasoline throughput greater than 7.2 million gallons.
 - (b) Loading facilities. Facilities for the purpose of loading gasoline into any transport tank shall be equipped with a vapor control system (VCS) as described in (c) of this subsection and comply with the following conditions:
 - (i) The loading facility shall employ submerged or bottom loading for all transport tanks.
 - (ii) The VCS shall be connected during the entire loading of all transport tanks.
 - (iii) The loading of all transport tanks shall be performed such that the transfer is at all times vapor tight. Emissions from pressure relief valves shall not be included in the controlled emissions when the back pressure in the VRS collection lines is lower than the relief pressure setting of the transport tank's relief valves.
 - (iv) All loading lines and vapor lines shall be equipped to close automatically when disconnected. The point of closure shall be on the tank side of any hose or intermediate connecting line.
 - (c) Vapor control system (VCS). The VCS shall be designed and built according to accepted industrial practices and meet the following conditions:
 - (i) The VCS shall not allow organic vapors emitted to the ambient air to exceed thirty-five milligrams per liter (three hundred twenty-two milligrams per gallon) of gasoline loaded.
 - (ii) The VCS shall be equipped with a device to monitor the system while the VCS is in operation.
 - (iii) The back pressure in the VCS collection lines shall not exceed the transport tank's pressure relief settings.

(3) Bulk gasoline plants.

- (a) This section shall apply to all bulk gasoline plants with an average annual gasoline throughput greater than 7.2 million gallons.
- (b) Deliveries to bulk gasoline plant storage tanks.
 - (i) The owner or operator of a bulk gasoline plant shall not permit the loading of gasoline into a storage tank equipped with vapor balance fittings unless the vapor balance system is attached to the transport tank and operated properly. The vapor balance system shall prevent at least ninety percent of the displaced gasoline vapors from entering the ambient air. A vapor balance system that is designed, built, and operated according to accepted industrial practices will satisfy this requirement.
 - (ii) Storage tank requirements. All storage tanks with a nominal capacity greater than five hundred fifty gallons and used for the storage of gasoline shall comply with the following conditions:
 - (A) Each storage tank shall be equipped with a submerged fill line.
 - (B) Each storage tank shall be equipped for vapor balancing of gasoline vapors with transport tanks during gasoline transfer operations.
 - (C) The vapor line fittings on the storage tank side of break points with the transport tank vapor connection pipe or hose shall be equipped to close automatically when disconnected.
 - (D) The pressure relief valves on storage tanks shall be set at the highest possible pressure consistent with local and state codes for fire and safety but in no case greater than ninety percent of the tank's safe working pressure.
 - (iii) Transport tank requirements. All transport tanks transferring gasoline to storage tanks in a bulk gasoline plant shall comply with the following conditions:
 - (A) The transport tank shall be equipped with the proper attachment fittings to make vapor tight connections for vapor balancing with storage tanks.
 - (B) The vapor line fittings on the transport tank side of break points with the storage tank connection pipe or hose shall be equipped to close automatically when disconnected.
 - (C) The pressure relief valves on transport tanks shall be set at the highest possible pressure consistent with local and state codes for fire and safety.
- (c) Gasoline transfer operations.
 - (i) No owner or operator of a bulk gasoline plant or transport tank shall allow the transfer of gasoline between a stationary storage tank and a transport tank except when the following conditions exist:

- (A) The transport tanks are being submerged filled or bottom loaded.
 - (B) The loading of all transport tanks, except those exempted under (c)(ii) of this subsection are being performed using a vapor balance system.
 - (C) The transport tanks are equipped to balance vapors and maintained in a leak tight condition in accordance with subsection (6) of this section.
 - (D) The vapor return lines are connected between the transport tank and the stationary storage tank and the vapor balance system is operated properly.
- (ii) Transport tanks used for gasoline and meeting the following conditions shall be exempt from the requirement to be equipped with any attachment fitting for vapor balance lines if:
 - (A) The transport tank is used exclusively for the delivery of gasoline into storage tanks of a facility exempt from the vapor balance requirements of subsection (4) of this section; and the transport tank has a total nominal capacity less than four thousand gallons and is constructed so that it would require the installation of four or more separate vapor balance fittings; or
 - (B) In eastern Washington counties, a transport tank with a total nominal capacity less than four thousand gallons shall be exempt from the requirement to be fitted with any attachment fitting for vapor balance lines if the transport tank was in use prior to July 1, 1993. Replacement transport tanks or new equipment put into use July 1, 1993, or later are exempt from vapor balance requirements only as specified in (c)(ii)(A) of this subsection.
- (4) Gasoline dispensing facilities (Stage I).
 - (a) This section shall apply to the delivery of gasoline to gasoline dispensing facilities with an annual gasoline throughput greater than three hundred sixty thousand gallons and all new gasoline dispensing facilities with a total gasoline nominal storage capacity greater than ten thousand gallons.
 - (b) All gasoline storage tanks of the facilities defined in (a) of this subsection shall be equipped with submerged or bottom fill lines and fittings to vapor balance gasoline vapors with the delivery transport tank.
 - (c) Gasoline storage tanks with offset fill lines shall be exempt from the requirement of (b) of this subsection if installed prior to January 1, 1979.
 - (d) The owner or operator of a gasoline dispensing facility shall not permit the loading of gasoline into a storage tank equipped with vapor balance fittings from a transport tank equipped with vapor balance fittings unless the vapor balance system is attached to the transport tank and operated satisfactorily.
- (5) Gasoline dispensing facilities (Stage II).

- (a) Gasoline dispensing facilities are required to have certified Stage II vapor recovery systems under the following conditions:
- (i) By December 31, 1998, all facilities that dispense in excess of six hundred thousand gallons of gasoline per year and are located in a county, any part of which is designated as nonattainment for ozone under the Federal Clean Air Act, 42 U.S.C. Sec. 7407;
 - (ii) By December 31, 1998, all facilities that dispense in excess of six hundred thousand gallons of gasoline per year and are located in a county where an ozone maintenance plan has been adopted by a local air pollution control authority or the department of ecology that includes gasoline vapor recovery systems as a control strategy;
 - (iii) Until December 31, 1998, all facilities that dispense in excess of one million two hundred thousand gallons of gasoline per year and are located in an ozone-contributing county;
 - (iv) After December 31, 1998, all facilities that dispense in excess of eight hundred forty thousand gallons of gasoline per year and are located in any county, no part of which is designated as nonattainment for ozone under the Federal Clean Air Act, 42 U.S.C. Sec. 7407, provided that the department of ecology determines by December 31, 1997, that the use of gasoline vapor control systems in the county is important to achieving or maintaining attainment status in any other county or area.
 - (v) Until December 31, 1998, all facilities that dispense in excess of eight hundred forty thousand gallons of gasoline per year and had a Stage II vapor recovery system installed prior to March 30, 1996;
- (b) In addition to subsection (5)(a) of this section, all new and modified gasoline dispensing facilities with an annual gasoline throughput of 1.5 million gallons and above are required to have Stage II gasoline vapor recovery systems if a lot with a permanent residence is within the distance and throughput specifications of Table 1 of this subsection, and as explained in (b)(i) and (ii) of this subsection.

Table 1

Gasoline Throughput (millions of gallons)	Allowable Distance to the Property Line (meters)
1.5	20
2.0	25
4.0	38
6.0	49
8.0	58
10.0	66

- (i) When the throughput is not shown in the chart, interpolate to get the distance for that throughput.
 - (ii) The allowable distance shall be measured from the centroid of the pumps to the nearest point on the property line of the nearest lot on which a permanent residence is located. However, if the permanent residence is located at least twice the allowable distance from the centroid of the pumps, the requirements of (b) of this subsection shall not apply.
- (c)
 - (i) Beginning on July 1, 2001, and each year thereafter, the department of ecology shall publish the canister capture rate.
 - (ii) When the canister capture rate reaches fifteen percent and there are no major exceptions, waivers, or other adjustments to the EPA onboard canister regulations or program implementation, the department of ecology shall revise (b) of this subsection to incorporate the effect of canisters.
- (d) The owner or operator of new or modified gasoline dispensing facilities subject to any of the requirements of (a) or (b) of this subsection shall file a notice of construction.
- (e) The owner or operator of any gasoline dispensing facility may elect to submit a site-specific analysis of the requirement for a Stage II vapor recovery system under (b) of this subsection and request the department of ecology to evaluate it subject to the fees described in (k) of this subsection. The department of ecology will complete a second tier analysis described under WAC 173-460-090 within forty-five days of determining that the analysis submitted is complete and no additional information is needed. The requirements for gasoline vapor control shall be determined as a result of that process.
- (f) Fees. The fee for new source review of a gasoline dispensing facility under this section shall be the same as the fee under WAC 173-400-116 (2)(d)(ii) except, if a site-specific review is elected under (e) of this subsection, the fee shall be the same as the fee under WAC 173-400-116 (3)(c) for a tier two analysis.
- (g) This section shall apply to the refueling of motor vehicles from stationary tanks at gasoline dispensing facilities located in Washington.
- (h) All gasoline dispensing facilities subject to this section shall be equipped with a certified Stage II vapor recovery system.
- (i) The owner or operator of a gasoline dispensing facility subject to this section shall not transfer or allow the transfer of gasoline from stationary tanks into motor vehicle fuel tanks unless a certified Stage II vapor recovery system is used.
- (j) All Stage II vapor recovery equipment shall be installed in accordance with the system's certification requirements and shall be maintained to be leak free, vapor tight, and in good working order.
- (k) Whenever a Stage II vapor recovery system component is determined to be defective, the owner or operator shall take the system out of service until it has been repaired, replaced, or adjusted, as necessary.
- (l) The owner or operator of each gasoline dispensing facility utilizing a Stage II system shall conspicuously post operating instructions for the system in the gasoline dispensing

area. The instructions shall clearly describe how to fuel vehicles correctly using the vapor recovery nozzles and include a warning against topping off. Additionally, the instructions shall include a prominent display of ecology's toll free telephone number for complaints regarding the operation and condition of the vapor recovery nozzles.

(6) Equipment or systems failures.

- (a) Specific applicability. This section shall apply to all gasoline transport tanks equipped for gasoline vapor collection and all vapor collection systems at gasoline loading terminals, bulk gasoline plants, and gasoline dispensing facilities as described in subsections (2) through (5) of this section.

During the months of May, June, July, August, and September any failure of a vapor collection system at a bulk gasoline plant or gasoline loading terminal to comply with this section requires the discontinuation of gasoline transfer operations for the failed part of the system. Other transfer points that can continue to operate in compliance may be used. The loading or unloading of the transport tank connected to the failed part of the vapor collection system may be completed during the other months of the year.

(b) Provisions for specific processes.

- (i) The owner or operator of a gasoline loading terminal or bulk gasoline plant shall only allow the transfer of gasoline between the facility and a transport tank if a current leak test certification for the transport tank is on file with the facility or a valid inspection sticker is displayed on the vehicle. Certification is required annually.
- (ii) The owner or operator of a transport tank shall not make any connection to the tank for the purpose of loading or unloading gasoline, except in the case of an emergency, unless the gasoline transport tank has successfully completed the annual certification testing requirements in (c) of this subsection, and such certification is confirmed either by:
- (A) Have on file with each gasoline loading or unloading facility at which gasoline is transferred a current leak test certification for the transport tank; or
- (B) Display a sticker near the department of transportation certification plate required by 49 CFR 178.340-10b which:
- (I) Shows the date that the gasoline tank truck last passed the test required in (c) of this subsection;
- (II) Shows the identification number of the gasoline tank truck tank; and
- (III) Expires not more than one year from the date of the leak tight test.
- (iii) The owner or operator of a vapor collection system shall:

- (A) Operate the vapor collection system and the gasoline loading equipment during all loadings and unloadings of transport tanks equipped for emission control such that:
 - (I) The tank pressure will not exceed a pressure of eighteen inches of water or a vacuum of six inches of water;
 - (II) The concentration of gasoline vapors is below the lower explosive limit (LEL, measured as propane) at all points a distance of one inch from potential leak sources; and
 - (III) There are no visible liquid leaks except for a liquid leak of less than four drops per minute at the product loading connection during delivery.
 - (IV) Upon disconnecting transfer fittings, liquid leaks do not exceed ten milliliters (0.34 fluid ounces) per disconnect averaged over three disconnects.
- (B) Repair and retest a vapor collection system that exceeds the limits of (b)(iii)(A) of this subsection within fifteen days.
- (iv) The department or local air authority may, at any time, monitor a gasoline transport tank and vapor collection system during loading or unloading operations by the procedure in (c) of this subsection to confirm continuing compliance with this section.
- (c) Testing and monitoring.
 - (i) The owner or operator of a gasoline transport tank or vapor collection system shall, at his own expense, demonstrate compliance with (a) and (b) of this subsection, respectively. All tests shall be made by, or under the direction of, a person qualified to perform the tests and approved by the department.
 - (ii) Testing to determine compliance with this section shall use procedures approved by the department.
 - (iii) Monitoring to confirm continuing leak tight conditions shall use procedures approved by the department.
- (d) Recordkeeping.
 - (i) The owner or operator of a gasoline transport tank or vapor collection system shall maintain records of all certification tests and repairs for at least two years after the test or repair is completed.
 - (ii) The records of certification tests required by this section shall, as a minimum, contain:
 - (A) The transport tank identification number;
 - (B) The initial test pressure and the time of the reading;
 - (C) The final test pressure and the time of the reading;

- (D) The initial test vacuum and the time of the reading;
 - (E) The final test vacuum and the time of the reading;
 - (F) At the top of each report page the company name, date, and location of the tests on that page; and
 - (G) Name and title of the person conducting the test.
- (iii) The owner or operator of a gasoline transport tank shall annually certify that the transport tank passed the required tests.
 - (iv) Copies of all records required under this section shall immediately be made available to the department, upon written request, at any reasonable time.
- (e) Preventing evaporation. All persons shall take reasonable measures to prevent the spilling, discarding in sewers, storing in open containers, or handling of gasoline in a manner that will result in evaporation to the ambient air.

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WAC 173-491-050 RESERVED.

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